

A KEY TO THE PRINCIPAL GLABRATE SPECIES OF *TILIA*

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ARTIFICIAL KEY TO THE PRINCIPAL GLABRATE SPECIES OF *TILIA*

- I. Branchlets and petioles pubescent.....*caroliniana* var. *rhoophila*
- II. Branchlets and petioles glabrous
 - A. Petioles 2.2-2.4 cm long.....*floridana*
 - B. Petioles longer than 3 cm.
 - a. Angle with midrib of lowest primary veins 27° - 31° ; leaf blades obliquely truncate at base
caroliniana var. *caroliniana*
 - b. Angle with midrib of lowest primary veins more than 34° ; leaf blades cordate.
 - 1. Leaf blades usually 9-16 cm wide, often lustrous beneath; flowers 8-16 mm wide; end winter buds 6-7 mm long with 2 scales; fruit ripening Sep.-Oct.; bark furrowed; northern species..*americana*
 - 2. Leaf blades usually 5-9 cm wide, dull beneath; flowers 6-7 mm wide; end winter buds averaging 3.7 mm long with 1 scale; fruit ripening in July; bark fissured; southern species..... *relicta*

My article in PHYTOLOGIA 24:302-332. 1972. describing *Tilia relicta* sp.n. also contained in Table 1 a tabulated list of the characters of the four species shown in the above Key.

The above Key is presented as a tool for use in identifying specimens. If the specimen material reveals all the organs shown in the Key and if the measurements of the flowers and winter buds were taken from fresh field material and not herbarium specimens, the use of the Key should result in correct identification in nearly every case. But to arrive at a precise identification, the specimen should be subjected to analysis under Table 1 of my previous article in the manner described on pages 314-315.

It may be noted that pubescence of leaf blades is not mentioned in the above Key. From the earliest times it was noted that the American Basswoods fell

into two classes: those having leaf blades densely hairy beneath, known as heterophylla; and those having leaf blades with scattered or no hairs beneath. The pubescence of the undersurface of these glabrate species is very variable on the same tree and has no significant diagnostic value. The use of this character by most botanists to distinguish the glabrate species shows an amazing misconception of the genus.

Study of the end winter buds of T. relictata has disclosed differences between it and T. americana.¹

The length of the end winter buds of specimens of americana that I have collected is 6-7 mm. The average length of the end winter buds of 13 specimens of relictata is 3.7 mm. These figures, shown in Table 1 of my previous article, demonstrate a distinct difference between the species.

In relictata there is only one scale protecting the bud. This one red scale is broadly ovate or nearly round, 2-5.5 mm high.

The following authorities state that the buds of americana have two scales:

Wm. Trelease Winter Botany:228.

Wm. M. Harlow Twig Key:38.

Dean & Chadwick Ohio Trees:110. (3 scales)

Since relictata grows in a warmer climate than americana, there is not so much need of protecting the winter buds from cold.

There is a problem connected with the winter buds of species of Tilia. All the authorities state that the genus has no terminal bud; but they do not state that the buds are pseudoterminal. In Harlow & Harrar's Textbook of Dendrology:28 and Dean & Chadwick's Ohio Trees:13 it is stated that a pseudoterminal bud has a leaf scar directly below it and a terminal bud does not reveal it; and the end of the twig with a pseudoterminal bud dies and sloughs off after the beginning of the season and the lateral bud continues the growth of the twig.

In T. relictata the "terminal" winter buds are on one side of the leaf scar; and in the spring they unfold their leaves and growth progresses in the same way as a terminal winter bud. A permanent leaf scar

remains behind. No tissue (except the bud scale) dies or drops off.

Whether or not "A starveling tip of each branch is cut off cleanly by a self-healed scar" early in the season in other American species of Tilia, as stated on page 118 of William Trelease's Winter Botany, this feature is a minor character in Tilia.

As stated on pages 2, 3, 34 of my Manual of the Hawthorns of Cook and Du. Page Counties of Illinois, the species of the Tenuifoliae series of Crataegus are distinguished by their twiggy appearance, resulting from the fact that the ends of the branchlets die during the winter and new growth starts the next spring at a point about 7 or 8 mm below the end of the previous season's branchlet and the dead stubs persist for many years. These are true pseudoterminal buds.

Because of the question of the terminology of the winter buds of Tilia, I have used the term "end winter buds" in the above Key. I shall be glad to receive advice from a plant morphologist for the proper term to apply to winter buds that produce growth from the tip of the twig but are placed on one side of the twig and leave a permanent leaf scar.

¹The number of winter buds "1-6" of T. relictæ shown in the original description is erroneous. There is only one end winter bud.